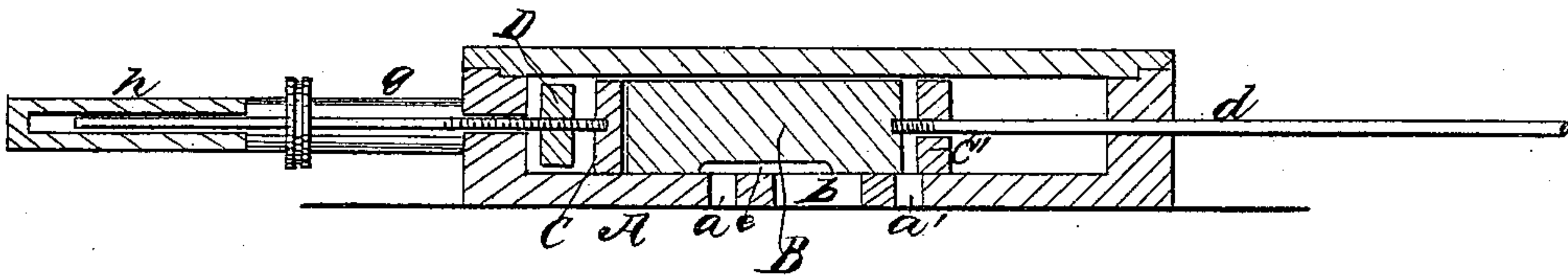


*A. Morton,  
Steam Cut-Off.*

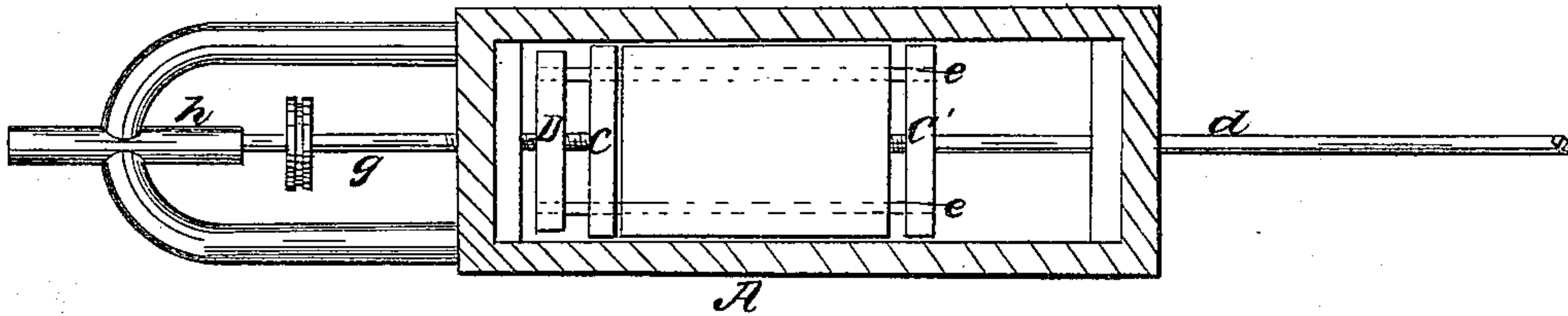
*No 47,122.*

*Patented Apr. 4, 1865.*

*Fig: 1*



*Fig: 2*



*Witnesses:  
C. S. Pliff  
Geo. Busch*

*Inventor:  
A. Morton  
per Munroe  
attys*

# UNITED STATES PATENT OFFICE.

ALBERT MORTON, OF SOUTH NEW MARKET, NEW HAMPSHIRE.

## IMPROVEMENT IN VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 47,122, dated April 4, 1865.

*To all whom it may concern:*

Be it known that I, ALBERT MORTON, of South New Market, in the county of Rockingham and State of New Hampshire, have invented a new and Improved Cut-Off Valve; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of this invention. Fig. 2 is a horizontal section of the same.

Similar letters of reference indicate like parts.

This invention consists in the use of two port-covers, one at each end of the valve, connected together by a rod or rods, or their equivalents, applied, in combination with a cross-head and with a screw rod and valve, in such a manner that by turning said screw-rod, either by hand or by the action of the governor the steam is cut off at any desired point, or the speed of the engine is regulated automatically, if desired, in a simple and effective way.

A represents the valve-chest, which communicates with the opposite ends of the steam-cylinder through ports *a a'*, and with the open atmosphere through the exhaust-port *b*.

B is the valve, made in the shape of an ordinary slide-valve, and arranged so as to open the steam-ports *a a'* alternately on passing them, as shown in Fig. 1 of the drawing, where the port *a'* is open, so as to admit steam to one end of the cylinder, while at the same time the other end communicates through the port *a* and cavity *c* in the valve with the exhaust-port *b* and with the open atmosphere. The reciprocating motion of the valve is produced by means of a valve-rod, *d*, which is permanently secured in the same, and extends through the end of the valve-chest, in the usual manner. Situated at each end of the valve is a port-cover, C or C', consisting of an oblong square solid block of iron or other suitable material and ground down steam-tight on the valve-seat at the bottom of the steam-chest. The port-cover C' is perforated with a hole to fit loosely on the valve-

rod *d*, and it connects by rods *e* with the cross-head D at the opposite end of the valve. Said rods are rigidly fastened in the port-cover C' and cross head D, and they extend loosely through holes *f* in the body of the valve and in the port-cover C. The distance between the ends of the valve and the port-covers, or that between the port covers from each other, is regulated by a screw-rod, *g*, which screws into the cross-head D and bears on the back of the port-cover C. If the port-covers are adjusted close to the ends of the valve, the ports never open, and the steam is cut off entirely; but if the port-covers are adjusted at such a distance one from the other that a certain space is left between them and the ends of the valve, and the valve is moved to the end of its stroke—for instance, to the position shown in the drawings in both figures—one of the steam ports is opened and steam is admitted during a larger or smaller portion of the stroke. By turning the screw-rod *g*, therefore, in one direction or in the other the port-covers are made to close up to or remove from the ends of the valve, and the steam is cut off sooner or later. Said screw-rod may be turned by hand, or, if desired, it may be operated by the action of the governor, so that the port-covers are set automatically according to the speed of the engine. In this case it is desirable to arrange the regulator-rod in such a manner that the same will not be forced out by the pressure of the steam, and to effect this purpose I make the outside bearing, *h*, of said regulator-rod hollow, as seen in Fig. 1 of the drawings, and by carrying steam to the outer end of the rod I balance the pressure, which would tend to force the rod outward and derange its action.

I claim as new and desire to secure by Letters Patent—

The use of two port-covers, C C', one at each end of the valve, and connected together by a rod or rods, or their equivalents, in combination with the cross-head D and regulating-rod *g*, constructed and operating substantially as and for the purpose set forth.

ALBERT MORTON.

Witnesses:

ALB. H. VARNEY,  
GIDEON WALDRON.